



**Department of
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Fact Sheet

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VA Research in Diabetes

An important element in VA's comprehensive effort against diabetes is research to advance care and treatment of the disease. In fiscal year 1999, VA scientists were conducting more than 400 diabetes-related research projects, which were supported by more than \$11 million in VA funds and \$20 million in grants from other sources.

Recent Research Advances

- VA researchers identified the first genetic “on-off” switch for insulin production. The gene they discovered triggers insulin production in rats, but stops production before blood-sugar levels drop too low. The results offer the potential for a genetic therapy that would automatically regulate insulin levels without requiring diabetic patients to give themselves injections or decide how much insulin they need.
- Another VA study showed significant cost savings and no reduction in health benefits by giving retinal exams less frequently to patients at low risk for blindness but more frequently to those at high risk, based on age and blood sugar control. The same group of researchers is now examining the effectiveness of new cameras designed to detect abnormalities in the eye, which can be operated by other vision-care specialists in regions where ophthalmologists are scarce.
- A seven-year VA study showed the drug gemfibrozil raises levels of “good” high-density lipoprotein (HDL) cholesterol. Diabetes is frequently part of “metabolic syndrome,” a combination of abnormalities that often accompany low HDL levels.
- An implantable insulin pump that may help diabetics avoid daily injections proved successful in a large-scale clinical trial. Patients with type-II diabetes who had the computer-controlled pump implanted had better sugar and weight control than patients receiving injections. Patients using the pump rated their quality of life significantly better.

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Ongoing Initiatives

- Eight diabetes research projects are underway as part of the Quality Enhancement Research Initiative (QuERI), led by VA's Health Services Research and Development Service (HSR&D). This effort will identify and evaluate diabetes care practices and current gaps in diabetes care. HSR&D recently issued a *VA Practice Matters* publication on preventing cardiovascular complications in diabetes, available on the Internet at http://www.va.gov/resdev/prt/pubs_individual.cfm?webpage=pubs_practice_matters.htm.
- The VA Cooperative Studies Program has begun a seven-year, \$57 million clinical trial to determine whether a more aggressive therapy for type-II diabetes will prevent complications such as heart disease and stroke. The effort, also involving the American Diabetes Association and four pharmaceutical companies, will test higher doses of drugs currently used to lower blood-sugar levels and help the body use insulin. Up to 1,700 veterans for whom standard therapy is no longer effective will take part in the study.
- The VA Rehabilitation R&D Center of Excellence for Limb Loss Prevention and Prosthetics Engineering in Seattle studies ways to prevent amputation, improve prostheses and improve patient outcomes. Researchers are studying 400 volunteers to determine whether protective shoes can help prevent foot ulcers and amputations in people with diabetes. The disease is the leading cause of lower-limb loss not associated with injury.
- Three special centers funded by the Medical Research Service and the Juvenile Diabetes Foundation are making strides in several research areas. In Iowa City, researchers are studying how blood vessels lose their ability to expand normally. That kind of vascular complication, when severe, can lead to amputation. In Nashville, investigators are seeking ways to reduce the side effects of intensive treatment or exercise—such as low blood sugar—so patients can receive their full complement of therapy. In San Diego, VA scientists are analyzing why the body develops resistance to insulin and examining the causes of diabetes-related complications, such as vascular and kidney disease.
- VA scientists in Detroit, supported by VA's Research Enhancement Award Program, are examining how genes are turned on and off by glucose and insulin. The ultimate goal is to develop better diabetes therapies to disrupt the disease's cycle of high blood-sugar levels and insulin resistance.

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